apparatus 46. ID rotor filling and centrifuge device 52 is further adapted to replace an ID test rotor 16 back into the ID incubation chamber 48 after presentation to the pipetting apparatus 46. The ID rotor filling and centrifuge device 52 is even further adapted to centrifugally rotate an ID test rotor 16 so as to distribute sample deposited therein by the pipetting apparatus 46.

In conjunction with the ID rotor filling and centrifuge device 52, the broth container handling apparatus 108, rotatable S/PT tray 38, ID rotors 16 and AST arrays 12, sample pipetting and delivery system 60 is able to automatically provide rapid and random access within analyzer 10 to all patient samples to be tested for ID and AST characteristics, to all reagents necessary to perform such ID and AST tests, and to all sample handling or test devices necessary for such ID and AST tests, without requiring operator intervention.

Devices adapted to perform the functions of pipetting apparatus 46, FIG. 23, are generally known and typically include stepper motor 104 (FIG. 3) and lead screw 106, a vacuum operated liquid sample aspiration/disposition system 114, and a vertical linear drive 116 having a tapered pipette tip mandrel 118 at its lower extremity, the mandrel 118 being sized for an interference fit into a pipette tip 42. Stepper motor 104 and lead screw 106 provide linear movement of the pipetting apparatus 46 along the path defined by positions 46a, 46b, 46c, 46d and 46e. Linear drive 116 provides vertical movement to a pipette tip 42 thereby to access the various liquid containers previously described. Pipetting apparatus 46 thereby provides means for aspiration of patient sample from a sample tube 34 and deposition of said sample into either of, or all of, a broth container 14, an ID rotor 16, and aspiration of mixed sample-broth solution from a broth container 14 and dispensing into an AST test array 12 carried by an AST carrier 74.

FIG. 5 shows the upper top surface 120 of an AST array 12 as containing relatively structured features described hereinafter and FIG. 6 shows the lower bottom surface 122 of an AST array 12 as being relatively flat. As described in a co-pending U. S. patent application Ser. No.:09/795,823 each AST array 12 has an elongate length and a plurality of upwardly projecting AST microwells 124 formed in the bottom surface 120 as a linear row of single microwells 124 parallel to the length of the array 12. Top surface 120 and bottom surface 122 are on opposing surfaces and are separated by an indented sidewall 126 and an opposed sidewall 128. A sacrificial evaporation well 132 is formed in

inventory chamber 22 to allow the AST canister 18 to be rotated using an AST canister handle 274 to a vertical position where an AST canister seating flange 276 fits into a vertical groove 21 (FIG. 1) in AST canister post 20. AST canister seating flange 276 extends the full length of an AST canister narrow side 284 except for a small AST canister alignment key 278 and alignment notch 279 provided to confirm proper orientation of AST canister 18 with a corresponding slot for key 278 and stop for notch 279 within the vertical groove 21 in AST canister post 20. AST canister 18 also comprises an AST canister eject port 280 formed in the AST canister narrow side 284 proximate AST canister cylindrical pivot 272 and sized to allow the lowermost AST test array 12 within the plurality of AST test arrays 12 stacked one atop another to be pushed out of AST canister 18. AST test arrays 12 may be pushed out of AST canister 18 using a plunger entering canister 18 through an AST canister plunger port 282 that is aligned with AST canister eject port 280 and is formed in the AST canister narrow side 284 opposing AST canister eject port 280. A pair of inwardly projecting dimples 289 are formed in AST canister flat sides 270 and extend into AST canister eject port 280 to retain AST test arrays 12 within AST canister 18, preventing accidental dislodging of a AST test array 12 from canister 18 and also to prevent AST test arrays 12 from being improperly inserted back into canister 18.

FIG. 8 is a top plan view of the ID test rotor 16 useful in the present invention and described in a co-pending U. S. patent application Ser. No.: 09/841,408. Rotor 16 comprises a rotor upper surface 170 and a rotor bottom surface 172 seen in FIG. 9. ID test rotor 16 has a rotor central axis 171, a rotor diameter D, and a generally flat radial outer sidewall 174 connecting the upper surface 170 and bottom surface 172 at the diameter D of the rotor 16. A recessed circular central portion 176 is recessed below the upper surface 170 of rotor 16. A first plurality of downwardly projecting microwells 178 are formed in the upper surface and are distributed equidistant from one another in a first circular array located at a first distance from the central axis 171; a second plurality of downwardly projecting microwells 182 are also formed in the upper surface 170 and are distributed equidistant from one another in a second circular array, located at a second distance from the central axis, the second distance being larger than the first distance; a first plurality of downwardly projecting microchannels 180 are formed in the top surface and connect the recessed central portion 176 to the first plurality of microwells 178; a

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